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THE 'SHOULD COST' CONCEPT

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THE "SHOULD COST" CONCEPT

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23 December 1973

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The primary problem, overriding all others, that faces the Department of Defense today is that of maintaining a modern, well-equipped military force within present and future budgetary constraints. In an effort to reduce cost growth and overruns on defense contracts, a new approach to cost analysis has been developed and implemented by DoD agencies. The new approach, called the "Should Cost Concept", has been used by all the services with significant savings reported. Some members of congress, Senator William Proxmire in particular, have challenged these claims, suggesting that the costs of performing a should cost study outweigh potential savings. Five of the first studies conducted by the Army have been examined. Of these, two studies were analyzed in detail to determine their value in establishing realistic negotiation objectives, identifying short long range management improvement programs and in achieving cost savings for the government. This analysis indicates that while there are needed improvements in the Army's study techniques and follow-up procedures, the "Should Cost Concept" is an efficient method of cost analysis that has generated significant savings for the DoD on current contracts. Additionally, the management improvement objectives established by these studies can provide additional savings on subsequent contracts.

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## IMPORTANCE OF COST ANALYSIS IN DOD CONTRACTING

The Honorable Barry J. Shillito, former Assistant Secretary of Defense (Installations and Logistics) recently stated:

Nearly 60 per cent of the DoD budget is now spent for people-related items such as salaries and retirements. Moreover, DoD has felt the bite of inflation. In terms of real money, the DoD budget has actually declined \$16 billion between FY 1968 and FY 1973. Recent cost growths are such that if these rates are extrapolated, in a very few years the Air Force will be able to afford one plane, the Navy one ship and the Army one tank.

Now more than ever before the DoD must use every means to control costs and stretch the limited defense funds to cover minimum essential requirements. Yet time and again during recent years, the DoD has been embarrassed and criticized by congress and the general public for the large overruns and cost growth on defense contracts. One technique now being used throughout the DoD to control costs on sole source, major weapons systems acquisitions is the "Should Cost Concept." This paper will analyze the technique and evaluate the manner in which the should cost studies are conducted by the Army Materiel Command and their overall value to the government.

### THE TRADITIONAL APPROACH

The purpose of a cost analysis is to develop a negotiation objective that will support the contracting officer's efforts in negotiating a fair and reasonable contract price. Traditionally the Army cost analysis was comprised of a cost audit and technical

evaluation of the contractor's past cost and performance data and his proposal rationale for the instant contract. The results of these independent analyses were furnished to the contracting officer who evaluated and reconciled the reports in order to establish the government cost objectives. This system does not provide for a coordinated, in depth analysis of the contractor's operations to verify the efficiency or inefficiencies of past performance. The traditional approach accepts the past inefficiencies and projects those costs forward in determining the validity of the contractor's new proposal. The result is a government negotiation objective which reflects what the contract 'will cost' when performed by the contractor at his present efficiency level. The following quotation which compares the traditional approach with the Should Cost Concept is contained in a memorandum to the Chairman of the Armed Services Procurement Regulation (ASPR) Committee from a sub-committee appointed to consider and recommend changes to the ASPR supporting the Should Cost Concept:

It is generally agreed that in the sole source environment, where, due to the absence of price competition, a contractor has little motivation to initiate or maintain a meaningful cost control system. In this environment historical cost and performance trends cannot be accepted as indicators or standards for determining the reasonableness of future performance. The former DEPSECDEF, Mr. David Packard, by the following statement to Congress, concurred in this conclusion during congressional hearings when discussing the need for DoD to contractually require management and cost control systems: 'I wish I could recommend some other approach to you, because I have great faith in the competitive free enterprise system. I believe it to be

generally more efficient than government control or government management. But I have reluctantly concluded that where we have complex, expensive military weapons and military systems, and where only one customer exists, the leveling actions of a free market economy simply do not work. As a former and future businessman I am prepared to tell you candidly that we might as well accept this fact and get on with the job of national defense.<sup>2</sup>

#### SHOULD COST APPROACH

This approach provides for a coordinated team of experts to examine all aspects of a contractor's operations. This in depth analysis identifies and challenges past inefficiencies.

To perform such an analysis, a team of Army specialists who possess expertise in design engineering, industrial engineering, accounting and management is organized. The team conducts an in depth analysis of a contractor's:

- Direct labor standards
- Cost allocation methods
- Unit standard materiel costs
- Plant utilization and plant layout
- Indirect factory expense
- Make or buy program
- Purchasing procedures and practices
- Vendor and special tooling allocations.<sup>3</sup>

The product of the should cost study includes short range and long range management improvement goals designed to improve the contractor's efficiency of operation on the current contract and on future defense contracts.

The following statement, extracted from congressional testimony ("Hearings Before a Subcommittee of the Committee on Government Operations," House of Representatives, 91st Congress, 1st Session on H.R. 474 - Government Procurement and Contracting (Part 5)), written

to a contractor, epitomizes the Should Cost Concept:

...we wish to make very clear indeed the precise nature and application of this method of pricing .... During our team briefings at the plant... we were informed by (your) personnel that, among other things, the plant is operating at only 80% efficiency, you have a labor turnover of alarming proportions, and you do not validate labor standards and allowances on any regular basis, etc.

That is why Government personnel are presently in your plant conducting an in depth analysis of those elements of your operation which we consider necessary to ascertain what the reasonable cost to the Government...should be....

Thus, the negotiation with you will be conducted, not on the basis of (your actual cost of production), but on the basis of what production... should cost if your plant were being operated efficiently. In other words, this approach may result in a decision by the Government not to accept the costs of admitted or indicated inefficiencies irrespective of whether such costs are actually incurred. The should cost method...must not be construed as an attempt on the part of the Government to tell a contractor how to conduct his operation--if, for example, the contractor wishes to conduct a patently inefficient operation, with excess indirect employees, poor estimating, labor that consistently fails to meet standards, lack of proper subcontracting, abnormal spoilage and rework, etc., that is his business. It is the Government's business, however, not to pay taxpayer's money for demonstrable inefficiencies in the manufacturing process of a sole source supplier, regardless of the quality of the ultimate product.

We respectfully submit that inherent in this should cost approach is a very real stimulus to bring about vigorous management at all levels and meaningful employee motivation with resultant economy and efficiency. Moreover, it is sincerely suggested that our approach will, in the long run, prove mutually

beneficial to your company and the Government, with more profit to you because of less costs and lower total prices to us.<sup>4</sup>

#### SHOULD COST STUDIES IMPACT ON PROCUREMENT

In order to assess the impact of the Should Cost concept on procurement, five should cost studies were examined. Two of these studies were analyzed in detail. None of the studies identify the contractor involved. This restriction was placed on the author by Mr. Robert J. Stohlman, Office of the Assistant Secretary of the Army (Installations and Logistics) in order to protect proprietary information regarding contractor operations and in accordance with prior government/contractor agreements regarding should cost study results.

All of the should cost teams were well organized and staffed with the requisite skills to perform a should cost study. In each case the teams had an orientation covering the Should Cost concept, the contractor's organization and the contract requirements. Few of the teams, however, had sufficient time for refresher training in sampling theory, ratio/delay techniques and other work measurement techniques. One team provided this type of training on the first Saturday that the team was in the contractor's plant. The training was conducted by consultants under contract with the government.

All five of the should cost teams did challenge the contractor's costs and his management and production practices which generated those costs. Both of the two should cost studies that were analyzed

in detail, sampled actual operations to verify labor efficiency. In one study the samples were compared with the standards developed by the contractor who used his past experience as the standard base. Only a small portion of the direct labor costs were challenged. In the other study the samples were compared with industry labor standard norms. In this case over 40 per cent of the contractor's direct labor costs were challenged. In all cases where adequate samples were taken and compared against industry norms, significant cost reductions were agreed to by the contractor. In other sectors of the contractor's operations the should cost teams also varied their approach. Some teams merely verified the contractor's calculations and standards while other teams made a completely independent estimate of costs using industry standards and applying their own professional expertise and judgment. Each of the studies identified past inefficiencies in contractor operations that could be corrected to the benefit of both the government and the contractor. The studies contained a cost estimate to be used as a base line for negotiations as well as recommendations for both short term and long term management improvement benefits.

#### IMPACT ON CONTRACT PRICE

The five should cost studies that were examined, recommended potential reductions of \$68.4 million. These reductions were based on contractor proposals of \$209.8 million. The following table provides a breakout of this data:

(FIGURES IN MILLIONS OF DOLLARS)			
CONTRACTOR	PROPOSAL	SHOULD COST	REDUCTION
1	\$ 95.8	\$ 58.2	\$37.6
2	44.9	33.6	11.3
3	24.9	17.0	7.9
4	24.1	19.4	4.7
5	20.1	13.2	6.9
TOTALS	\$209.8	\$141.4	\$68.4

The should cost team estimates as indicated above were supported by appropriate statistical data, rationale and analysis to provide the contracting officer with a strong, defensible basis for his negotiation objective. The spread between the should cost estimates and the contractor's proposal was much greater than is normally the case in negotiations for contracts of this type. The negotiations were longer, went into more detail and covered many more cost areas than is usually the case. Although it is not possible to ascertain how much of the price reductions can be attributed directly to the Should Cost concept, a review of past negotiations verifies the fact that the price reductions during these negotiations were greater than had been experienced in the past for similar types of contracts with the same contractors.

An analysis of the price reductions actually realized as a result of negotiations is indicated on the following chart:

(FIGURES IN MILLIONS OF DOLLARS)			
CONTRACTOR	RECOMMENDED REDUCTIONS BY SHOULD COST TEAM	ACTUAL REDUCTIONS NEGOTIATED	PERCENT OF REDUCTIONS FROM PROPOSAL
1	\$37.6	\$13.7	14.3
2	11.3	5.7	12.7
3	7.9	4.4	17.7
4	4.7	1.9	7.9
5	6.9	3.4	16.9
TOTALS	\$68.4	\$29.1	13.8

A review of prior procurements for essentially the same items from two of the same contractors revealed an average price reduction of seven per cent after negotiations. The greater price reduction (13.8 per cent) as indicated above is considered to be a result of a stronger and more defensible government negotiation objective as developed and supported by the should cost study results. It should be noted that future savings to both the government and the contractor as a result of implementing management improvement programs to attain long range improvement goals identified by the should cost teams are not reflected in price reductions connected with the immediate contracts. In some cases the additional costs relevant to these management improvement programs have been accepted by the government and included in current contract costs although the savings to be generated will not be realized during performance on current contracts.

#### MANAGEMENT IMPROVEMENT PROGRAMS

The short and long range management improvement programs recommended by should cost teams that are accepted and implemented by contractors represent potential downstream savings to the government that should be substantial. Each of the five studies examined recommended improvement programs involving such activities as contractor procurement practices, make-or-buy pricing policies, inventory control procedures, plant layouts and the accounting for and control of rework costs. These improvement programs were generally sound recommendations well supported by the findings and data contained in the should cost studies. Despite this, only a few

of the programs were adopted with implementation undertaken by the contractor. In the case of one study, the contractor was reluctant to adopt any of the programs as he felt the management changes recommended tended to limit the flexibility of his staff. This contractor did eventually agree to adopt two of the programs. The government, however, failed to establish targets, goals and milestones that could be used to measure progress. As a result the resident government contract administration personnel have not been able to properly enforce the implementation of the programs. In the second study the improvement programs were not discussed with or mentioned to the contractor until the final negotiations had been concluded. The contractor would not agree to the adoption of any of the recommended programs since (i) they were not a part of the solicitation, (ii) there was no compensation offered as inducement and (iii) it would have been imprudent to adopt any program that would require expenditures and result in significant production or organization changes without first making a detailed evaluation of the program.

In the five studies reviewed, it was noted that no one from the government resident plant staffs participated in the should cost studies or the contract negotiations. The recommendations regarding management improvement programs were never discussed with these resident inspectors who are responsible for the contractor's performance under the contract to include the implementation of management improvement programs. Copies of the should cost studies

were provided to the resident inspectors eventually, in one case seven months after negotiations had been completed.

#### COSTS OF MAKING SHOULD COST STUDIES

The approximate costs of two studies have been calculated and are displayed below:

	STUDY 1	STUDY 2
Salaries and Overtime	\$127,000	\$146,000
Travel and Per Diem	35,000	52,000
Consultant Fees	32,000	32,000
TOTAL COSTS	\$194,000	\$230,000

These costs are based on the following team efforts:

- a. Planning, training and orientation
- b. In-plant review
- c. Developing negotiation objectives
- d. Preparing the final report
- e. Assisting in negotiations.

The cost of office supplies, reproduction, printing and other miscellaneous expenses have not been considered and it is not felt that these costs would represent any significant impact on the overall total study cost.

The impact and cost on AMC in-house operations due to the long term absence of the should cost team members from their normal jobs was not considered.

Although consultants were used in both of the studies examined, subsequent studies have not utilized consultant services. The Army Materiel Command has developed a small group of specialists at the

Procurement Research Office, Fort Lee, Virginia which is now used in lieu of consultants.

#### CUNCLUSIONS

The use of the Should Cost concept greatly strengthens the contracting officer's negotiating position. The technique provides the government with the tools and organization to effectively analyze all aspects of a contractor's operations. Not only does the team identify inefficiencies in past and present operations but it is composed of the requisite technical and professional skills to develop improvement recommendations designed to cure these inefficiencies. The should cost studies furnish the contracting officer with a realistic and defensible negotiation objective that reflects what the contract 'should cost' the government assuming reasonable economies and efficiencies on the part of the contractor. This conclusion is supported by the Comptroller General of the United States in a report to Congress stating:

As a result of our trial reviews, we believe that should-cost concepts can be effectively applied to contractor operations and that GAO should continue to make such reviews. In our opinion, however, the greatest benefits will accrue when this type of review is performed by procuring activities as part of their preaward analyses of contractor's proposals. At that time, the results of should-cost reviews would be of maximum effectiveness in assisting Government negotiators in arriving at fair and reasonable prices. Even more importantly, potential Government contractors will be more likely to accept should-cost findings and to implement any needed corrective procedures prior to the award of a major contract.<sup>5</sup>

Although it is difficult to document savings directly attributable to should cost studies, it is evident that these studies have enabled contracting officers to negotiate substantial cost savings. The costs required to field a should cost team are well justified when compared to savings realized through more efficient and better supported contract negotiations.

The savings on current contracts, while impressive, are not the total savings resulting from the should cost studies. The successful implementation of government proposed, long range management improvement programs also represent significant savings to the government on follow-on contracts. These savings are not measurable at the present time but will contribute additional real savings to offset the costs of conducting should cost studies. In this regard the Comptroller General's Report to Congress concluded:

The cost of our studies was considerably less than the quantifiable potential savings that we identified. Certainly, studies such as these should not be undertaken without some reasonable basis for anticipating that the benefits will outweigh the costs. It should be realized, however, that many of the benefits of a should-cost study are long term and not readily measurable and that the cost of making a review, as opposed to the immediate measurable benefits, should not be the prime determining factor.<sup>6</sup>

The should cost studies examined give ample evidence as to the ability of the teams to identify inefficient contractor operations and to develop appropriate improvement recommendations. There have been shortcomings, however, in the government's presentations of these recommendations to the contractor. The recommendations have

not always been oriented toward providing additional rewards for the contractor and in some instances were presented during final negotiations without providing the contractor with sufficient time to research and evaluate the impact of the recommendations.

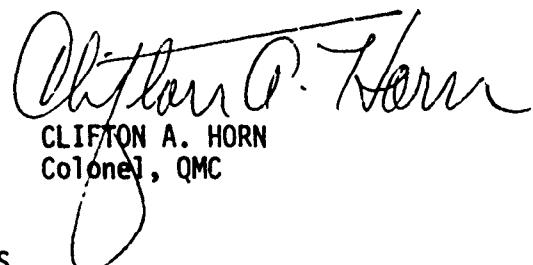
Additionally, the recommendations did not always provide for scheduled milestones to allow government inspectors to properly monitor the contractor's implementation progress. Even more serious is the government's negligence in failing to provide resident inspectors with full particulars regarding management improvement programs that were accepted by the contractors during negotiations.

#### RECOMMENDATIONS

The Army should continue to use the Should Cost concept, refining the techniques in accordance with the lessons learned in conducting the various studies. It is essential that an appropriate training program be developed and that selected personnel are trained and retrained in order to provide the high quality personnel assets required to perform the should cost studies. Should cost teams should develop an independent cost estimate utilizing industry standards rather than merely verifying the contractor's standards and cost estimates. Management improvement recommendations should be discussed in detail with contractor personnel during the in-plant review so that both the government and the contractor can consider these recommendations during the negotiations.

The Army should ensure that resident contract administration

staffs are fully conversant with should cost studies conducted in their respective plants and that they conduct a vigorous follow-up on management improvement programs and projects. In some cases resident staff members should be used as members of the should cost team and in all cases should participate in the negotiations. Should cost savings should be documented, including those savings resulting from long range management improvement programs, in order to defend the Should Cost concept before public and congressional critics.



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FOOTNOTES

1. Barry J. Shillito, "Defense Logistics: Challenge of the 1970s," *Defense Management Journal*, January 1973, p. 2.
2. Robert J. Stohlmeyer, Office of the Assistant Secretary of the Army (Installations and Logistics), memorandum to the Chairman of the Armed Services Procurement Regulation Committee, 16 May 1972, p. 2.
3. Robert Seiwert, "Budget Squeeze Necessitates Stretching the DoD Dollar," *Defense Industry Bulletin*, p. 22.
4. Headquarters, US Army Materiel Command, *AMC Pamphlet AMC 715-7*, pp. 1-2 and 1-3.
5. The Comptroller General of the United States, Report to Congress, *Application of "Should Cost" Concepts in Review of Contractors' Operations*, 26 February 1971, p. 28.
6. *Ibid.*, p. 27.

## BIBLIOGRAPHY

1. Shillito, Barry J. "Defense Logistics: Challenge of the 1970s." *Defense Management Journal*, January 1973, p. 2.
2. Stohlman, Robert J. Office of The Assistant Secretary of the Army (Installations and Logistics). Memorandum to the Chairman of the Armed Services Procurement Regulation Committee, 16 May 1972, p. 2.
3. Seiwert, Robert. "Budget Squeeze Necessitates Stretching the DoD Dollar." *Defense Industry Bulletin*, p. 22.
4. Headquarters, US Army Materiel Command. *AMC Pamphlet AMC 715-7. Procurement, Should-Cost Analysis Guide*, May 1972.
5. The Comptroller General of the United States Report to Congress. *Application of "Should Cost" Concepts in Review of Contractors' Operations*. US General Accounting Office, Washington, D. C., 26 February 1971.